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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Harness Dickey & Pierce P L C
P O Box 828
Bloomfield Hills, MI 48303

EXAMINER

SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 10/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,769

Applicant(s)

IIJIMA, CHIYOAKI

Examiner

Andrew Schechter

Art Unit

2871

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 13 August 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4,6-11 and 16-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 1-4 and 6-11 is/are allowed.

6) Claim(s) 16-24 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "LCD having diffuser between liquid crystal panel and reflector and reduced parallax".

Response to Arguments

2. Applicant's arguments filed 13 August 2002 have been fully considered but they are not persuasive.

The rejections of claims 12, 14, and 15 in view of *Weber* are moot due to the cancellation of these claims.

Claim 1 has been amended to specify that the diffuser-reflector distance d is between 0.7 and 0.2 mm, inclusive. The previous rejection of claim 1 over *Weber* in view of *Onderkirk* was based on the device using a conventional substrate with thickness of 1.1 mm, when the distance d would be at least the thickness of two substrates. This amendment to claim 1 therefore overcomes the previous rejection, which is withdrawn.

New claim 16 does not recite this limitation of the diffuser-reflector distance d . Without this limitation, any distance d greater than 0.7 mm renders the inequality $H \geq -$

200d + 140 (mm) automatically satisfied. The previous rejection of claims 1 and 6 over *Weber* in view of *Onderkirk* and *Broer* is therefore appropriate to claim 16.

The applicant argues that the light reflector of claim 16 is not taught by the prior art of record. This is not persuasive. *Onderkirk* shows a reflective plate [39] behind the illumination device in Fig. 2, as *Broer* does [11 in Fig. 1].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Weber* in view of *Onderkirk*, and further in view of *Broer et al.*, U.S. Patent No. 6,359,670.

Weber discloses [see Fig. 9] a transreflective LCD (both reflection type and transmission type), comprising a liquid crystal panel [142] and an illuminating device [132], where the illuminating device has a light guiding member [col. 11, lines 63]. The device also comprises a light diffuser [134], arranged between the liquid crystal display and the backlight (which can contain a reflector, as will be discussed in a moment). There are at least two substrates [150 and 152] between the diffuser and the reflector, to say nothing of the thickness of the light guide itself, so d will be greater than 0.7 mm

and the recited haze inequality is automatically satisfied (the haze is always greater than or equal to zero or any negative number).

Weber does not explicitly disclose that the diffuser has “forward scattering characteristics”. *Onderkirk* teaches using a diffuser “with a high degree of forward scattering” in an analogous context [col. 3, lines 12-15, and it would be obvious to one of ordinary skill in the art to do so in the device of *Weber*, motivated among other reasons by *Onderkirk*’s teaching that this is equivalent to low reflectivity, so the light will be efficiently utilized.

Weber discloses an illuminating device [132] and suggests a variety of possibilities [col. 11, lines 61-64] but without explicit details, particularly that there is a reflector present. The examiner takes official notice that it would be obvious to one of ordinary skill in the art to use a conventional backlight structure as shown in Fig. 1 of *Broer*, which has a light source [10] introducing light into a light guiding member which has a light reflector [11] on its bottom surface. (This structure is well-known and has advantages such as being thin and having efficient use of light due to the reflector.) When the device is in transreflective mode, therefore, this element [11] acts as the light reflector of claim 16. Claim 16 is therefore unpatentable.

There is a light source [10] in *Broer* to introduce light to the light guiding member, and the illuminating device is between the light diffuser and the light reflector, so claims 20 and 21 are also unpatentable. There is a polarizer [138] on the front side of the liquid crystal display in *Weber*, and an absorbing polarizer [140] between the liquid crystal panel and the light reflector, so claims 23 and 19 are also unpatentable. There

is reflective polarizer [144] between the polarizer [140] and the reflector, with the transmission axes coinciding, so claims 22 and 24 are also unpatentable.

5. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Weber* in view of *Onderkirk* and *Broer* as applied to claim 16 above.

Weber does not disclose color filters in its liquid crystal panel [142]. However, the examiner takes official notice that such (red, green, and blue) color filters are well-known and conventional and it would be obvious to one of ordinary skill in the art to include them, motivated by the desire to create a color display. Claims 17 and 18 are therefore unpatentable.

Allowable Subject Matter

6. Claims 1-4 and 6-11 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 has been amended to specify that the diffuser-reflector distance d is between 0.7 and 0.2 mm, inclusive. The previous rejection of claim 1 over *Weber* in view of *Onderkirk* was based on the device using a conventional substrate with thickness of 1.1 mm, when the distance d would be at least the thickness of two substrates. This amendment to claim 1 therefore overcomes the previous rejection, which is withdrawn. The prior art does not disclose a device having the recited values of diffuser-reflector distance and haze recited in claim 1. Claims 2-4 and 6-11 depend on claim 1.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4711 for regular communications and (703) 746-4711 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Andrew Schechter
October 21, 2002



TOANTON
PRIMARY EXAMINER